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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,535	07/19/2000	Dr. Werner Groh	032745-020	2257

21839 7590 06/21/2002

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EXAMINER

SALVATORE, LYNDIA

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 06/21/2002

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/619,535	Applicant(s) GROH ET AL.	
	Examiner Lynda M Salvatore	Art Unit 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 12 April 2002.

2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-41 is/are pending in the application.

4a) Of the above claim(s) 19-39 is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-18, 40 and 41 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>547</u>	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____
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DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-18, 40 and 41 in Paper No. 9 is acknowledged. The traversal is on the ground(s) that examination of both inventions (article and method) would not be burdensome. This is not found persuasive because as set forth in the restriction requirement, the inventions are distinct. As such, the search for Group I would not be coextensive with the invention of Group II or vice versa.

The requirement is still deemed proper and is therefore made **FINAL**.

Claim Objections

2. Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form. Claim 11 does not further limit the synthetic non-woven of claim 1, which is already limited to thermally shrunken.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1,3,10 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 2-18,40 and 41 are further rejected for their dependency on claim 1.

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5. Regarding claim 1, the phrase "possibly" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). It is unclear to the examiner if the applicant is claiming an "underlying" layer or if it is merely "possible" to have an "underlying" layer. No patentable weight is given to the limitations following "possibly" at this time.
6. Claim 3 is rejected because it is not understood if the basis weights of the synthetic layers are equal or different from another synthetic non-woven layer or the non-woven glass layer.
7. Claim 1 recites the limitations of "the upper" and "the underlying" synthetic non-woven layer. There is insufficient antecedent basis for these limitations in the claim.
8. Claim 10 is contradictory to what is claimed in claim 1. Claim 1 recites the limitation of a "thermally shrunk non-woven layer of synthetic fibers" which functions at least in part to consolidate the fibers and claim 10 recites having a non-consolidated synthetic non-woven. It is unclear to the examiner if the applicant intends having a consolidated or non-consolidated non-woven.
9. Claim 16 is indefinite because it is unclear to the examiner what is meant by "reinforcements". Does the laminate have further structural elements, fibers, or yarns other than what is already recited in claim 1?

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-11, 14-16, 18, 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schops et al., US 6,235,657 in view of Heidel et al., US 4,578,307.

The patent issued to Schops et al. discloses a three layer laminate comprising two synthetic spunbonded layers and at least one reinforcing layer disposed between two synthetic layers needled together (Abstract and figure 1). The laminate may additionally be further consolidated with a chemical binder if desired (Column 5, lines 17-18). The spun-bonded webs are made of continuous filaments composed of melt-spinnable materials such as polyester (Column 2, lines 30-40). Particular preference is given to polyesters comprising at least 95 mol % of polyethylene terephthalate (Column 2, lines 63-65). The laid reinforcing layer is preferably made of glass staple fiber (Column 4, lines 14-19 and 36-37). Schops et al., discloses having webs of differing basis weights may be preferred in certain specialized applications (Column 5, lines 12-16). It is also preferred in some instances to have webs of substantially the same basis weight (Column 5, lines 10-11).

The thermally shrunken limitation is not given patentable weight at this time, as it is method limitation and only given weight to the final product. However, Heidel et al. does teach using polyethylene terephthalate fibers, which have a high strength, a high modulus, and a low shrinkage upon heating because the dimensions of the non-woven web remain constant during further processing (Column 2, lines 30-36). As such, a fiber, which has low or no thermal shrinkage capabilities, meets the present limitation of "thermally shrunken".

Schops et al also teaches that preference is given to laminates based on glass laid structures comprising two sets of yarns oriented in the longitudinal and transverse directions.

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Schops et al., discloses that this arrangement is preferred in cases where high mechanical stability is desired. (Column 3, lines 38-45, figures 2 and 3, and Column 4, lines 36-37).

Schops et al. discloses that in the course of the bituminisation, the final sheet has contracted widthways only 2-3 mm as opposed to the 12mm contraction of conventional sheets under the same bituminization conditions.

Schops et al., does not specifically disclose pre-consolidating the glass fiber mat, however, the patent to Heidel et al., discloses a glass fiber and synthetic fiber mat that are needled together and end-consolidated (Abstract). Heidel et al. teaches pre-consolidating the glass fiber mat with polymer binders or melamine resins (Column 2, lines 14-17). Suitable synthetic mat fibers include polyamides and polyesters of staple or continuous filaments (Column 2, lines 29-30 and lines 44-48). Furthermore, Heidel et al., discloses that random non-wovens of continuous fibers, which have undergone certain pre-consolidation by a calendaring process, are particularly preferred (Column 2, lines 45-51).

Therefore, motivated by the teachings of Heidel et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Schops et al. laminate by pre-consolidating the glass layer as disclosed by Heidel et al.

Regarding claim 7 and 8, Schops et al. teaches using two synthetic non-woven webs where one of the webs is 20% thicker than the other (Column 5, lines 13-16). It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the thickness of each synthetic non-woven layer. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233

With respect to claims 14 and 15, the method limitations involving the needle draft are not given patentable weight at this time since they do not effectively manipulate the final product.

12. Alternatively, if the method of limitation of "thermally shrunken" is given patentable weight then the following rejection is made:

Claims 1-11, 14-16, 18, 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schops et al., US 6,235,657 in view of Heidel et al., US 4,578,307 and further in view of Niki et al., US 4,578,307.

Heidel et al. and Schops et al., fail to expressly disclose using a heat shrunken synthetic non-woven layer, however, the patent to Niki et al., discloses Niki et al., discloses that needle-punched non-wovens of polyethylene terephthalate filaments which have been subjected to heat treatment for the purpose of shrinking the non-woven sheet is known in the art (Column 12, lines 50-55). Niki et al., teaches that polyethylene terephthalate filaments exhibit good heat resistance, and good dimension stability which make them suitable for use in clothing and industrial materials (Column 2, lines 16-20). Therefore, motivated by the teachings of Niki et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a thermally shrunken synthetic non-woven such as the one disclosed by Niki et al. in the formation of the Heidel et al. composite. Motivation for this can be found in the prior art references where it is known in the art to heat shrink non-wovens comprising polyethylene terephthalate filaments to improve dimensional stability.

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With respect to claims 14 and 15, the method limitations involving the needle draft are not given patentable weight at this time since they do not effectively manipulate the final product.

13. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over unpatentable over Heidel et al. in view of Schops et al., US 6,235,657 as applied to claim 1 above.

Alternatively, Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schops et al., US 6,235,657 in view of Heidel et al., US 4578307 as applied to claim 1 above, and further in view of Niki et al., US 4,578,307.

Heidel et al., discloses pre-consolidating the glass fiber mat with a polymer binder or the claimed melamine resin. Heidel lacks an explicit teaching as to the amount of binder, but does state that low amounts are suitable due to the bonding strength melamine resins. It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the amount of resin used to pre-consolidate the glass fiber mat. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233

14. Claim 17 is rejected under 35 U.S.C 103 (a) being unpatentable over unpatentable over Heidel et al. in view of Schops et al., US 6,235,657 as applied to claim 1 above, and further in view of Cochran et al., US 4,892,780.

Alternatively, claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schops et al., US 6,235,657 in view of Heidel et al., US 4578307 and in view of Niki et al., US 4,578,307 as applied to claim 1 above, and further in view of Cochran et al., US 4,892,780.

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Heidel et al. does not disclose the specific types of glass fibers used in the composite, however, the patent issued to Cochran et al., discloses a fiber reinforcement composite comprising a fibrous substrate having staple fiber applied to one or both sides (Abstract). The fibrous substrate may be a knit, woven, or non-woven of high strength fibers, filaments, or yarns of glass, acrylics or carbon. The staple fiber add-on may be polyester, polyamide, or polyethylene. Cochran et al., teaches in example 15 a composite of E-glass fibers. Therefore, motivated by the teachings of Heidel et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose E-glass fibers as taught by Cochran, as the glass fibers of the Heidel et al. invention. Motivation for this argument is the known strength and electrical properties of E-glass fibers.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynda M Salvatore whose telephone number is 703-305-4070. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

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June 13, 2002


CHERYL A. JUSKA
PRIMARY EXAMINER